

510-82

ABS. ONLY

N 9 4 - 2 2 4 4 8

175000

P-1

A Self-Defining Hierarchical Data System

J. Bailey (AAO)

The Self-Defining Data System (SDS) is a system which allows the creation of self-defining hierarchical data structures in a form which allows the data to be moved between different machine architectures. Because the structures are self-defining they can be used for communication between independent modules in a distributed system.

Unlike disk-based hierarchical data systems such as Starlink's HDS, SDS works entirely in memory and is very fast. Data structures are created and manipulated as internal dynamic structures in memory managed by SDS itself. A structure may then be exported into a caller supplied memory buffer in a defined external format. This structure can be written as a file or sent as a message to another machine. It remains static in structure until it is reimported into SDS.

SDS is written in portable C and has been run on a number of different machine architectures. Structures are portable between machines with SDS looking after conversion of byte order, floating point format and alignment. A Fortran callable version is also available for some machines.